Comment Letter #1 - Hans Kim

South Coast Air Quality Management District
Assembly Bill 617
South Los Angeles Dry Cleaning Equipment Replacement Project Plan

1. Project Identification and Background

Assembly Bill 617

Assembly Bill 617 (AB 617) was approved in 2017 and addresses the disproportionate impacts of air pollution in disadvantaged communities. The California Air Resources Board (CARB) has designated six (6) AB 617 communities within the jurisdiction of South Coast Air Quality Management District (South Coast AQMD) to develop both a Community Emission Reductions Plan (CERP) and a Community Air Monitoring Plan (CAMP). Each CERP and CAMP is developed under the guidance of a Community Steering Committee (CSC), which is a group of stakeholders comprised of active residents, representatives of community-based organizations, universities, government agencies, businesses, and/or others. As part of CERP development, each CSC identifies their community's top air quality priorities and helps develop objectives to address them.

Assembly Bill 617 South Los Angeles Community

In February 2021, South Los Angeles (SLA) was designated as an AB 617 community. The SLA CSC, composed of approximately 40 members in June 2022, collaborated with South Coast AQMD to develop the SLA CERP.[1] The South Coast AQMD Governing Board adopted the SLA CERP on June 3, 2022, and CARB approved the SLA CERP on August 26, 2022. The SLA CSC identified five (5) air quality priorities:

1) Mobile Sources,
2) Auto Body Shops,
3) General Industrial Facilities,
4) Metal Processing Facilities, and
5) Oil and Gas Industry

The SLA CERP includes objectives to address a number of these air quality priorities, including dry cleaners which are classified under General Industrial Facilities. One of the CERP objectives for the General Industrial air quality priority involves identifying incentive opportunities to transition dry cleaning equipment to community-identified alternatives, including zero-emission professional wet cleaning (PWC).[2]

Community Air Protection Incentives Program Funding

As part of the AB 617 Program, South Coast AQMD has been allocated Community Air Protection (CAP) Incentives Program funding to help implement CERP objectives. Some of the money provided for CAP Incentives funds is appropriated through California Climate Investments. California Climate

[1] South Coast AQMD, *Assembly Bill 617 South Los Angeles Community Emissions Reduction Plan*, approved August 2022, https://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/south-la/final-cerp.pdf?sfvrsn=7a5fa261_18

[2] *Assembly Bill 617 South Los Angeles Community Emissions Reduction Plan,* Chapter 5D, Table 5D-1, Goal C South Coast AQMD SLA Dry Cleaning Equipment Replacement Project Plan

Investments is a statewide initiative which distributes Cap-and-Trade auction proceeds from the Greenhouse Gas Reduction Fund to help address climate change and improve public health and the environment, particularly in disadvantaged communities. CAP Incentives funds can be applied towards mobile source, stationary source, and community-identified projects to reduce emissions and/or community air pollution exposure. A community-identified project is a project developed to address one or more objectives in an approved CERP that have been prioritized by the CSC to receive CAP Incentives funding for implementation. The SLA community was allocated $11.2 million in Year 3 CAP Incentives funds.

Dry Cleaning Equipment Replacement Project

This document serves as the "Project Plan" for a community-identified zero-emission dry cleaning machine replacement project. This Project Plan was drafted in accordance with the 2025 CARB AB 617 Community Air Protection Incentives Program Guidelines, with particular attention to Chapter 6: Community-Identified Projects.[3] This Project Plan outlines the community-supported strategy, the requirements for entities seeking to participate, and the process for project funding. The Project Plan also describes project selection criteria and inspection and reporting requirements. These efforts are expected to benefit the community by improving air quality.

This Project Plan funds the replacement of regulated conventional dry cleaning equipment, including both solvent-based dry cleaning machines and associated natural gas boilers, with zero-emission technology. In 2015, CARB recognized both PWC and carbon dioxide (CO_2) dry cleaning as zero-emission technologies which commercial apparel cleaners can use to replace emissions-regulated dry cleaning machines.[4] That said, there are no longer any manufacturers of CO_2 dry cleaning machines. As such, this project focuses exclusively on PWC as the only commercially available zero-emission technology.

This Project Plan will replace dry cleaning equipment requiring a permit by South Coast AQMD with zero-emission PWC equipment. For each participating dry cleaning facility, emission reductions will be calculated by comparing the dry cleaning facility's South Coast AQMD permit and utility records against post-conversion data reflecting the replacement of solvent-based dry cleaning equipment to PWC equipment (see Section 7: Cost Benefit Analysis for more information).[5] Further, for each dry cleaning facility converted, a reduction in greenhouse gas emissions is anticipated based on the substantial reduction in natural gas use when dry cleaning facilities transition from natural gas boilers to electric boilers.

Dry cleaning facilities commonly use boilers to generate steam to operate finishing equipment. In many cases, these boilers are fueled by natural gas, which remains a prevalent choice due to cost effectiveness and reliability. The United States Environmental Protection Agency (U.S. EPA) recognizes that the combustion of natural gas, including in boilers, releases air pollutants such as nitrous oxides (NO_X), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), and sulfur dioxide (SO_2), as well as greenhouse gases such as CO_2, methane (CH_4), and nitrous

[3] California Air Resources Board, *Community Air Protection Incentives Program Guidelines*, revised May 30, 2025, https://ww2.arb.ca.gov/sites/default/files/2024-04/FINAL%20CAP%20Incentives%20Guidelines%20-%202024-04-04.pdf

[4] California Air Resources Board, *Alternative Solvents: Health and Environmental Impacts*, revised September 4, 2015, https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dryclean/notice2015_alt_solvents.pdf

[5] Peter Sinsheimer, *Comparison of Electricity and Natural Gas Use of Five Garment Care* Technologies, revised February 19, 2009, https://etcc-ca.com/sites/default/files/OLD/images/stories/et_05_01_wet_cleaning_rpt.pdf

oxide (N_2O).[6] Therefore, this Project Plan includes CAP Incentives funds for participant dry cleaning facilities to switch their boiler system from natural gas to electric.[7]

As detailed in the 2014 CARB Professional Wet Cleaning Guidebook[8], to greater assure the success of dry cleaning facilities making this switch, the best practice is to contract with a qualified PWC service provider. Qualified PWC service providers are expected to have sufficient experience and expertise in the removal of regulated pollution-emitting dry cleaning equipment, facility redesign for new equipment, procurement and installation of qualified PWC equipment, PWC equipment maintenance, and comprehensive training to optimize the capabilities of these zero-emission technologies. Responsibilities of service providers will be defined as deliverables in executed contracts. Additional roles may be added as needed throughout the duration of the Project.

2. Community Support

Community co-lead Physicians for Social Responsibility – Los Angeles (PSR-LA) shared a presentation on the viability of PWC equipment as a zero-emission substitute to dry cleaning equipment at the February 2022 SLA CSC meeting.[9] This led to the CSC supporting the inclusion of an incentive objective focused on zero-emission dry cleaning equipment replacement into the CERP.

At the October 24, 2024, CSC meeting community co-lead PSR-LA reviewed key elements of this project, including providing up to 100% CAP Incentives funds covering eligible costs related to the successful conversion of dry cleaning equipment to PWC equipment. Additional eligible costs related to switching participant dry cleaning facilities from using natural gas boilers to electric boilers were reviewed. CSC members emphasized the importance of "bringing the right people to the table" to ensure the successful implementation of the SLA community-identified projects and unanimously voted to approve the Participatory Budgeting Funding Proposal, with $2.3 million in CAP Incentives funds allocated for this Project Plan.[10]

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[6] Environmental Protection Agency, *AP-42: Compilation of Air Emissions Factors from Stationary Sources, Section 1.4 – Natural Gas Combustion*, 2020 https://www.epa.gov/sites/default/files/2020-09/documents/1.4_natural_gas_combustion.pdf

[7] In order for participant cleaners to qualify for switching their boiler system from natural gas to electric, participant cleaners shall be in compliance with all South Coast AQMD rules and regulations, in particular South Coast AQMD Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters. Per CARB's 2025 CAP Incentives Guidelines, CAP Incentives funds may not be used to bring a participant cleaner into compliance. However, CAP Incentives funds may be used for early rule compliance and to support participant cleaners in meeting regulatory standards before regulatory deadlines

[8] California Air Resources Board, *Professional Wet Cleaning Guidebook*, released October 14,2017, https://ww2.arb.ca.gov/sites/default/files/classic//toxics/dryclean/wetcleaning_guidebook.pdf

[9] South Coast AQMD, *February 3, 2022, SLA CSC Meeting Archived Recording*, timestamp 41:20, https://www.facebook.com/watch/live/?ref=watch_permalink&v=1087541558671728

[10] South Coast AQMD, *October 24, 2024, SLA CSC Meeting Presentation*, https://www.aqmd.gov/docs/default-source/ab-617- ab-134/steering-committees/south-la/sla---presentation---10-24-2024.pdf?sfvrsn=633c8561_6

3. Eligibility and Requirements

(A) Applicant Eligibility

1-1 • Owner/operator of a dry cleaning facility ~~within the SLA community boundary~~ in possession of a valid South Coast AQMD Permit to Operate dry cleaning equipment ~~in compliance with all permit requirements.~~

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(B) Replacement Equipment Requirements

1) Replacement PWC equipment must meet the equipment criteria listed in the 2014 CARB Professional Wet Cleaning Guidebook[11] and include the following:

- **a)** Professional wet clean washer,
- **b)** Professional wet clean dryer, and
- **c)** Professional wet clean grade tensioning presses

2) Replacement PWC equipment must be comparable to the dry cleaning facility's existing dry cleaning equipment and sufficient to maintain the facility's current level of operations without significantly expanding operational capacity.

3) The replacement PWC equipment must be under a maintenance agreement for the duration of the Project Life as defined in Section 6 below.

(C) Process and Participant Requirements

4) Participants are required to submit a complete project application.

5) Participants are required to contract with a qualified PWC service provider, as defined in Section 3 (D) below, who will provide the following:

- **a)** Procurement of PWC equipment meeting 2014 CARB Professional Wet Cleaning Guidebook Requirements,
- **b)** Procurement of PWC detergents for the first year of operation,
- **c)** Removal and proper disposal of existing dry cleaning equipment,
- **d)** Modification of existing dry cleaning facility for installation of new PWC equipment,
- **e)** Installation of PWC equipment,
- **f)** Comprehensive training in the use of PWC equipment and changes in operations to optimize this zero-emission technology,
- **g)** PWC service providers should also provide the following for the replacement of a natural-gas-fired steam boiler with an electric boiler system:
  - **i.** Procurement of an electric boiler system,
  - **ii.** Removal and proper disposal of the natural-gas-fired steam boiler, and
  - **iii.** Installation of an electric boiler system to provide sufficient steam for dry cleaning facility operations.

6) Participants are required to provide a quote from a qualified service provider including each element related to the conversion to PWC listed in Section 3 (B). Additionally, with the replacement of the natural-gas-fired steam boiler, each element of the conversion to an electric boiler system as listed in Section 3 (C) must be included in the quote. Along with the bid, the participant shall include the

[11] See Footnote 9, Professional Wet Cleaning Guidebook, pages 23-25 South Coast AQMD SLA Dry Cleaning Equipment Replacement Project Plan.

Commented [HK1]: Section 5 Includes the cleaners outside SLA to apply.

Commented [HK2]: This only makes sense if the participant continues to need a SC operating permit. In this case, the permitted dry cleaner machine is removed. In addition, SC should want a cleaner not complying with existing dry cleaning permit requirement to switch to a zero-emission alternative since non-compliance could be associated with higher adverse emissions beyond the maximum set by the permit which are eliminated by their conversion to PWC.

qualifications of the service provider as listed in Section 3 (D) below.

1-3

7) Participants shall agree, as their in kind ~~Provide a minimum~~ cost-sharing contribution, to serve as demonstration site hosting workshops, tours, and trainings during the project life (see Section 6) ~~of 20% of the total project cost. Cost sharing may include monetary contributions (e.g., replacement PWC equipment expenses) or in-kind support (e.g., dedicated employee time to complete related project and PWC equipment training). Applicants must indicate their committed cost-sharing percentage in the application. Cost-sharing contributions will be verified through invoices, proof of payment, training certification or other verifiable documentation as needed. Additional details on cost-sharing and project evaluation and ranking are provided in Section 5: Project Selection and Ranking.~~

8) Participants shall agree to remove all dry cleaning equipment, not add any additional dry cleaning equipment during the Project Life (see Section 6), not remove new PWC equipment during the Project Life, and maintain CAP Incentives funded PWC equipment during the Project Life.

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~~**9)** Participants shall agree in writing, per contractual obligations, to use installed PWC equipment to process all customer apparel brought to the dry cleaning facility.~~

10) Participants shall agree to participate in ongoing data collection related to their conversion during the entire project life (see Section 6 below for the data to be collected).

11) Once the application has been approved, a contract will be offered to the participant.

12) Once the contract is signed, the participant shall coordinate with the PWC service provider on the removal of equipment to be replaced, modifications to the dry cleaning facility to enable proper use of the new PWC equipment, installation of the new PWC equipment, training, and maintenance.

13) The removed dry cleaning equipment shall be surrendered to an approved salvage yard[12] and rendered permanently inoperable. The surrendered dry cleaning equipment must include a hole in the equipment block with a diameter of at least three inches at the narrowest point. The hole must be irregularly shaped (i.e., no symmetrical squares or circles). All hazardous waste, including solvents and residue, shall be managed and disposed of in accordance with all applicable federal, state, and local regulations.

14) Once new PWC equipment is installed, post-inspection will be conducted by the project administrator to confirm that each piece of new PWC equipment installed meets the 2014 CARB Professional Wet Cleaning Guidebook criteria, proper operation of all equipment, and the participant has received proper training in the use of newly installed PWC equipment as well as training on modification of operations based on equipment characteristics.

15) After successful post-inspection is completed, the participant shall submit the invoice and W-9 tax form from the service provider to South Coast AQMD, including whether any down payment was provided to the service provider by the

[12] Approved salvage yard refers to licensed facilities authorized by regulatory agencies to dismantle or recycle equipment and handle any associated hazardous waste safely and lawfully.

Commented [HK3]: During the October 24, 2024 CSC meeting a presentation was made on the PWC project showing the critical steps in converting dry cleaners to PWC and the estimated total cost per site to carry out these steps. No monetary cost share was recommended. Following the presentation, time was set aside to answer any questions by CSC members or clarifying questions from South Coast staff or CARB staff. No CSC members nor South Coast staff nor CARB staff brought up the question of whether or not it would be a good idea to add in a cost share. During other CSC meetings, both South Coast staff and CARB asked clarifying questions, and they certainty had the opportunity to do so here. In sum, the presentation was to recommend 100% of the conversion cost be covered and the CSC members attending this meeting approved this recommendation.

Based on my experience I believe this was a wise choice to cover 100% of the costs of conversion.

First, cleaners in South Los Angeles are very unlikely to be able to afford a monetary costs share.

Second, a monetary cost share does not make sense in this case. A monetary cost share presumes that participants putting in a share of their own money would more likely be committed to successful converting since they have something financial to lose if they fail. In this case, removing their dry cleaning, the core technology of their business, is a significant financial risk both in terms of uncertainty in how their customers will respond, uncertainty in their ability to learn the now PWC process, and uncertainty in the future value of their business as a PWC in selling the business. By agreeing to switch to PWC, each cleaner is putting substantial skin in the game.

On the other hand, the in-kind contribution of serving as a demonstration site has been shown to add substantial value to incentive projects since it provides role models for dry cleaners considering conversion.

Given the added value of cleaners serving as a demonstration site, I recommend simply requiring this.

Commented [HK4]: All dry cleaners reject a certain percentage of apparel if, in their professional judgement, they do not believe they can successfully process the item. For example, certain items are labeled “Do Not Clean”.

participant, as well as a completed W-9 tax form.

1-5

16) Once South Coast AQMD receives both the invoice and the completed W-9 tax form, South Coast AQMD shall issue a check for the amount of the invoice and mailed to the service provider and/or participant as detailed in the executed contract within 30 days of receiving the invoice and W-9 form. If the South Coast AQMD fails to pay the invoice within 30 days, an additional 2% interest charge shall be added for each additional 30-day delay.

17) The participant may change during the course of the project, such as changing ownership of the dry cleaning facility, as long as the new participant signs a revised contract with South Coast AQMD and complies with all project requirements.

1-6

18) Failure to adhere to requirements may result ~~in~~ in removal of installed equipment, termination of participation in the program and/or ineligibility for future funding opportunities.

Commented [HK5]: 30 days is the standard time for government agencies to pay invoices. My experience as a serve provider to government agencies, including PWC incentive projects, including the South Coast, is that often invoice payment significantly delayed beyond 30 days. Such delays add significant cost to a serve provider.

Commented [HK6]: The South Coast should understand that from the perspective of participant cleaners, termination of participation in the program may incentivize them to not participate in the program after conversion since participation requires time and effort. Further, ineligibility for future funding opportunities would not incentivize them to adhere to requirements since such opportunities are very unlikely. The only threat that makes sense is the removal of the installed equipment

(D) Qualified Professional Wet Cleaning Service Provider

As discussed in the 2014 CARB Professional Wet Cleaning Guidebook, the success of dry cleaning facilities switching from dry cleaning equipment to PWC equipment improves substantially when a PWC equipment service provider coordinates the conversion process.[13] Integrating in the use of a qualified PWC equipment service provider further supports the request of the SLA CSC to "bring the right people to the table" to ensure successful project implementation and greater emission reductions by ensuring proper removal and disposal of dry cleaning equipment and proper installation, staff training, and maintenance of PWC equipment.

1) Qualified PWC service providers must demonstrate a minimum of five years of experience in converting dry cleaning equipment to dedicated PWC equipment. This includes the ability to:

- **a.** Procure and install qualified PWC equipment
- **b.** Arrange the removal and proper disposal of dry cleaning equipment ~~as detailed in Section 3 (C) above~~
- **c.** Modify dry cleaning facility equipment layout prior to the installation of PWC equipment to optimize PWC equipment operations
- **d.** Provide comprehensive technical training on PWC equipment use and optimizing dry cleaning facility operations using PWC equipment
- **e.** Deliver ongoing PWC equipment maintenance and technical support
- **f.** Provide five or more references from customers converted from dry cleaning equipment to PWC equipment[14]

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Commented [HK7]: The requirements specified in Section 3 (C) have never been practiced in this sector. Therefore nobody involved with removing a dry clean machine has prior experience in such a practice.

4. Funding Amounts

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This Project Plan will fund ~~up to 80~~100% of the eligible costs for equipment procurement and services

Commented [HK8]: As discussed above, the presentation to the CSC during the October 24, 2024 meeting on this project recommended that 100% of the conversion cost be covered for each site. After this presentation, the CSC approved this project.

[13] See Footnote 9, *Professional Wet Cleaning Guidebook,* page 29 South Coast AQMD SLA Dry Cleaning Equipment Replacement Project Plan

[14] See Footnote 9, *Professional Wet Cleaning Guidebook,* pages 28-29

related to the conversion to zero-emission PWC equipment and conversion to zero-emission electric boilers. ~~Applicants are required to provide a minimum of 20% cost share as explained in Section 3 (C) above. Selected contractor(s) will be reimbursed for eligible costs in accordance with the payment terms outlined in the payment schedule, which will be based on the scheduled deliverables as detailed in the forthcoming procurement process.~~

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~~Note that cost-sharing contributions will not be eligible for reimbursement under this program. While eligible costs (listed below) may be reimbursed using program funds, any portion of the project identified and committed as cost share will be considered the applicant's contribution and will not be reimbursed, either partially or in full. Please see Section 5: Project Selection and Ranking for proposals which include cost-sharing.~~

1-10

Eligible and Ineligible Costs

Eligible costs include:

- Purchase and installation of qualified zero-emission PWC equipment
- Purchase of PWC detergents for the first year of operation
- Purchase and installation of a zero-emission electric boiler system
- Removal of dry-cleaning machine(s)
- Removal of natural gas boiler
- Dry cleaning facility modification for installation of new equipment
- Delivery charges
- Comprehensive equipment training
- Sales tax
- ~~Outreach and outreach materials~~

1-11

- Up to ~~12.5~~ 25% of total project budget for management ~~and administration~~[15] [15]

1-12, 1-13

- Up to 5% of the grant request may be budgeted for contingency costs (i.e., unforeseen costs such as price increases due to tariffs)

Costs not eligible to be funded:

- Overhead (e.g., office rent, utilities, office equipment and supplies)
- Extended warranties

5. Project ~~Selection and~~ Ranking

1-14

~~Applications will be reviewed for completeness and the extent to which they meet the requirements in Section 3. Additionally, South Coast AQMD will prioritize eligible projects based on the following criteria which aims to ensure that program funds are directed towards the projects that have the potential to provide the greatest community benefit, demonstrate shared investment, and align with the SLA CERP's emission and exposure reductions goals:~~[16]

[15] The SELA Green Spaces Project Plan included as an eligible costs "Up to 25% of the grant request may be budgeted for non-construction costs, including, but not limited to, design and project administration and management." ~~Since dry cleaning facility design is already covered as an allowable cost in this Project Plan, total management and administrative costs was set at half this rate, or 12.5%.~~

1-15

Commented [HK9]: This sentence needs to be removed given elimination a monetary cost share.

Commented [HK10]: Same as above given elimination of a monetary cost share

Commented [HK11]: Based on my involvement with prior PWC incentive projects, the Project Manager was responsible for all outreach and outreach materials. This should be incorporated with the next line item.

Commented [HK12]: By incorporating outreach and outreach materials into the line item for the project manager, this parallels the citation on the SELA Green Spaces project plan South Coast added to this Project Management eligible cost, which included up to 25% of total project costs for Project Management.

Based on my experience, substantial effort is required of the Project Manager to successfully implement such a project. In looking for the SELA Green Spaces citation, I did notice that the South Coast issued a prior January 2024 SELA Green Spaces Project Plan which only provided up to 10% for Project Management and that this was increased to up to 25% in January 2025 for the revised version. The fact that South Cost needed to create a second Green Spaces project plan which increased the amount for project management shows 10% was not sufficient to get this project successfully up and running.

Commented [HK13]: Since by the Project Manager and the South Coast will need to engage in their own separate administrative work, and since this line items is related to project management, it would be clearer if the word "administration" were removed here

Commented [HK14]: Covered under 3C

Commented [HK15]: Since monetary cost-share needs to be eliminated, shared investment does not make sense. Selecting applicants based on the potential to provide the greatest community benefit or which align with SLA CERP's emissions and exposure reduction goals suggests these two concepts can be somehow quantified for use as selection and ranking. The South Coast provides no evidence for this.

Further, based on prior PWC incentive projects, if a cleaners is willing to switch for dry cleaning to PWC, this by itself serves is enough to insure a successful conversion.

a) Projects located in AB 617 South Los Angeles community boundary[16]

1-16 ~~b) Projects offering a higher percentage of cost-sharing contributions will be awarded additional points and ranked higher accordingly. Cost-sharing may include monetary contribution or in-kind support, and~~

c) Projects located in other geographic areas classified as disadvantaged communities within South Coast AQMD experiencing significant adverse emissions impacts as identified in the South Coast AQMD's Air Quality Management Plan (AQMP).[17]

1-17 ~~Once applications have been reviewed and scored, ranked eligible projects will be presented to the SLA CSC for additional feedback before finalizing applicant selection. South Coast AQMD will respond to applicants as soon as feasible considering the volume of applications received, not to exceed 90 days.~~

1-18 ## 6. ~~Project Implementation,~~ Data Collection, ~~and~~ Project Life, and ~~Project~~ Project Implementation

All individual projects that receive funding under this Project Plan must comply with the reporting requirements described in Chapter 3 of the 2025 CAP Incentives Guidelines. In addition, participants must participate in project-specific data collection including, but not limited to, initial and annual reports. The initial report shall be completed after each participant is selected but before the dry cleaning facility is converted to document dry cleaning facility operations while operating dry cleaning equipment. Each annual report will be conducted after the initial conversion for the life of the project.

The initial report shall be compared to each annual report to determine permit-related emission reductions, any greenhouse gas emission reductions, and the cost-effectiveness (i.e., the project's cost relative to the amount of emissions reduced) of each participant dry cleaning facility and the project as a whole. The initial and annual reports shall include, but are not limited to, the following:

- Dry cleaning facility operating costs before and after conversion (e.g. electricity and natural gas, detergents, solvents, hazardous waste disposal, changes in labor time, equipment maintenance, regulatory compliance)
- Volume of garments cleaned before and after conversion

This list of data collection elements is not exhaustive. Additional details and requirements will be provided in the forthcoming procurement process and as part of the contract executed.

The contract period will be based on two phases: Project Implementation and Project Life.

- Project Implementation is the period between contract execution and South Coast AQMD receipt of photo documentation of completed grant-funded PWC equipment installation. Project Implementation must follow the schedule included in the executed contract.

Commented [HK16]: This should be removed given the need to remove cost sharing from the selection criteria.

Commented [HK17]: This should be removed since nothing is to be scored given the removal of monetary cost-share, the only review needed is for application completeness to be carried out by the project manager, and the only question of ranking is whether not the applicant is located in South LA which is a purely factual question.

[16] South Coast AQMD, *South Los Angeles Community Boundary*, finalized May 2021: https://scaqmd-online.maps.arcgis.com/apps/webappviewer/index.html?id=cd4c08533c7e41dfbb6d7ca874239c87

[17] The 2025 CAP Incentives Guidelines require that 70% of incentive funding be directed to disadvantaged communities, including both AB 617-designated areas and other low-income communities. This rank order increases the assurance that the maximum emission reductions in disadvantaged communities will be created through the implementation of this Project Plan as supported by the 2025 CAP Incentives Guidelines.

- Project Life is two (2) years from the date of South Coast AQMD receipt of initial report photo documentation prior to dry cleaning facility conversion. Regular maintenance of the grant funded green PWC equipment installation throughout the Project Life to be conducted as needed. Annual photo documentation of the maintained grant-funded PWC equipment required.

At the conclusion of the project, South Coast AQMD staff will utilize project information to report the overall emissions reduction benefits and cost-effectiveness benefits of this project.[18] Permit-related emission reductions shall be based on the maximum permissible monthly dry cleaning equipment solvent consumption stated on each participant's South Coast AQMD Permit to Operate dry cleaning equipment.[19]

1-19 With respect to project implementation, to greater assure the success of this project, and comply with the CSC request that the right people are brought in to greater assure successful project implementation, priority for project management shall be given to a 3rd-party with expertise and experience in implementing pollution reduction incentive projects, and, preferably with specific experience and expertise in implementing incentive projects designed to convert dry cleaners to PWC.

1-20 An additional benefit of using a 3rd party for project management for the entire project is that once a participant removes their dry clean machine and converts to zero-emission PWC, the District dry clean machine operating permit is officially voided, and therefore the District no longer has any rights to oversee any part of participant's operations, including data collection through the 2-year project life.

1-21 The further benefit of using a 3rd party throughout project implementation this the inherent enforcement role of the South Coast AQMD overseeing dry cleaner permit compliance prior to their conversion. If more than one such 3rd party can be identified then the South Coast AQMD will issue an RFP for project management. If one 3rd party is identified, then the South Coast AQMD will sole source project management.

7. Cost Benefit Analysis

Overview of Benefits and Emission Reductions

The project plan will result in a reduction of greenhouse gas, NO_x, and VOC emissions. While VOCs

[18] The information listed here is needed for the following reporting requirements: permit-related emission reductions, greenhouse gas emissions reduction, and cost-effectiveness.

[19] Dry cleaning facilities are required to obtain a South Coast AQMD "Permit to Operate" prior to operating dry cleaning equipment. This South Coast AQMD document details the equipment location, equipment description, and conditions for use, including the maximum permissible solvent consumption for dry cleaning equipment.

Commented [HK18]: Prior successful implementation of PWC incentive projects at South Coast and CARB were conducted by a 3rd party with experience and expertise in conversion

Commented [HK19]: In my experience converting dry cleaners to PWC, one of the significant benefits stated by cleaners converting is by converting they will get the air district regulators off their back. This being the case, removing the South Coast from any direct contact with the cleaners and having this done by a 3rd party benefits the success of such a project.

Commented [HK20]: During the February 13, 2025 CSC meeting, the South Coast included a slide describing this. It is important to specify this next step in the project plan in order to help expedite getting this project to the project implementation stage.

South Coast needs to recognize that it has taken them nearly one year since the CSC approved this project to create an initial Project Plan draft. Moving at this rate, there is likely to be little if any time for the project manager to convert the first cleaner let alone all potential applicants before project funding for conversion ends for this zero-emission technology. This completely goes against the entire intent of AB617.

With respect to RFP vs sole source, I am aware of one 3rd party with this specific experience and expertise to serve as project manager who happens to be based in the Los Angeles region; Dr. Peter Sinsheimer. Since I was not aware of anyone else, I searched the web to identify another 3rd party meeting these qualifications but was not able to find anyone else.

To expedite moving this project forward, I recommend that South Coast complete this search now in order to take action on issuing an RFP or moving forward with a sole source immediately after Stationary Source committee and CARB approval of the project plan.

As a practical matter, a sole source would expedite getting to project implementation since both a contract from a sole source and from a party selected through an RFP would require South Coast Board approval and an RFP would significantly delay getting to the contract stage.

are not criteria air pollutants, they contribute to the formation of ground-level ozone, which is a criteria air pollutant. By reducing VOC emissions, the project may help indirectly lower ozone levels. Emission reductions will be quantified using the dry cleaning facility's South Coast AQMD Permit to Operate and utility records. The following equipment categories detail how emission reductions will be realized and quantified:

> Dry cleaning equipment: Replacing solvent-based dry cleaning equipment with PWC equipment will eliminate VOC emissions associated with cleaning solvents and reduce NO_X and greenhouse gas (GHG) emissions from associated equipment. A baseline will be established using each dry cleaning facility's South Coast AQMD dry cleaning equipment permit and supplemented as needed by utility billing data. Emission reductions will be quantified by comparing each dry cleaning facility's baseline with post-conversion data to be collected during Project Life.
>
> Boilers: Replacing natural-gas-fired steam boilers with electric boilers will result in NO_X, GHG, and VOC emission reductions. A baseline for natural-gas-fired steam boiler emissions will be established based on each dry cleaning facility's utility records to reflect actual use. Emission reductions will be quantified by comparing the baseline with post-conversion electricity use.

Cost-effectiveness quantification shall be based on 2025 CAP Incentives Guidelines specified in Chapter 6: Community-Identified Projects, U.S. EPA and South Coast AQMD established methodologies, and data collected at participant facilities through the Project Life. In addition, operating costs data collected at participant dry cleaning facilities shall be used to quantify facility-specific cost-effectiveness and compiled at the end of the Project Life.[20]

Calculating Emission Reductions

Dry cleaning facilities typically operate with solvent-based dry cleaning machines and natural gas boilers. These systems contribute to local air pollution through both VOC emissions from petroleum and solvent use (e.g., hydrocarbon solvents) and criteria pollutants (e.g., NO_X and SO_2) from natural gas combustion The following provides calculations for annual emissions from petroleum-based solvent use and natural gas combustion to establish a baseline of current dry cleaning facility operations. Due to dry cleaning facilities varying in size and operations, example scenarios will also be used to illustrate emissions across different scenarios.

Solvent Emissions

South Coast AQMD Permits to Operate for dry cleaning facilities include limits on the total quantity of solvents to be used in permitted equipment to ensure VOC emissions stay below certain thresholds.[21]

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[20] For South Coast AQMD-established methodologies quantifying capital and operating costs of dry cleaners converting to PWC, see Sinsheimer, P., Grout, C., Namkoong, A., Gottlieb, R., & Latif, A. (2007). The viability of professional wet cleaning as a pollution prevention alternative to perchloroethylene dry cleaning. *Journal of the Air & Waste Management Association*, 57*(2)*, pages 172-178, https://www.tandfonline.com/doi/epdf/10.1080/10473289.2007.10465320?needAccess=true

[21] South Coast AQMD, Rule 1109 – Dry Cleaners Using Solvents other than Perchloroethylene,

South Coast AQMD used a default VOC emission factor of 1.17 pounds per gallon (lbs/gal) for petroleum-based solvent used by dry cleaning operations.[22] It is approximated that dry cleaning facilities use 1 to 20 gallons of petroleum-based solvent per month, which equates to 12 to 240 gallons per year (gal/yr). The annual VOC emissions in pounds per year (lbs/yr) can be calculated using the following equation:

VOC Emission Factor (lbs/gal) x Annual Solvent Usage (gal/yr) = Annual Emissions (lbs/yr)

Using this equation, we can calculate the total VOC emissions per dry cleaning facility as approximately 14.04 to 280.80 lbs/yr of VOC emissions for 1 to 20 gallons of petroleum-based solvent used per month.[23]

Boiler Emissions

Boilers used in dry cleaning facilities vary in size depending on operational demands. Smaller shops may use natural-gas-fired steam boilers below 10 boiler horsepower (BHP), while larger operations may operate boilers in the 20 to 30 BHP range or above. Boiler manufacturers in the dry cleaning sector show commercial units ranging from 5 to 50 BHP. For the purpose of illustrating potential emission reductions, this emission reductions calculation uses a 20 BHP natural-gas-fired steam boiler as representative of a typical commercial operation with a mid-size unit.

To estimate the fuel input, BHP is converted using an assumed thermal efficiency of approximately 80%, which is consistent with performance specifications of natural-gas-fired steam boilers published by local manufacturers.[24] Actual efficiency may vary depending on the type, maintenance, and operating conditions of each equipment.

(A) Converting Boiler Horsepower to Fuel Input

1 BHP is equal to 33,475 British Thermal Units per hour (Btu/hr).[25] Using the representative 20 BHP natural-gas-fired steam boiler unit size, this equates to 669,500 Btu/hr of thermal energy output. Assuming 80% efficiency, fuel input in millions of British Thermal Units per hour (MMBtu/hr) can be calculated using the following equation:

Thermal Energy Output (Btu/hr) ÷ Thermal Efficiency (%) = Fuel Input

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https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1102-dry-cleaners-using-solvent-other-than perchloroethylene.pdf

[22] South Coast AQMD, *Guidelines for Reporting Emissions from Dry Cleaning Operations*, March 2023: https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/guidelines-for-reporting-emissions-from dry-cleaning-operations.pdf?sfvrsn=6x

[23] Solvent use range based on current South Coast AQMD dry cleaning facility Permits to Operate and the operating conditions listed therein. For more information, see South Coast AQMD's Facility Information Detail (F.I.N.D.): https://xappprod.aqmd.gov/find/

[24] South Coast AQMD does not endorse or promote any specific technology or vendor. This figure is used solely as a reference point for calculation purposes. For more information, see the Parker Boiler Company's "Steam Boilers" webpage at https://parkerboiler.com/products/steam-boilers/

[25] American Boiler Manufacturer Association, Boiler Horsepower: History of Definitions in the Firetube Boiler Industry, page 4, https://www.abma.com/assets/docs/Tech_Resources/2015%20-%20boiler%20hp%20history.pdf

(MMBtu/hr) Using this equation, we can calculate the fuel input as approximately

0.837 MMBtu/hr.

(B) Dry Cleaning Facility Operation Scenarios

Annual fuel use depends on the dry cleaning facility's hours of operations. For reference, we will consider the following two scenarios:

- Scenario A: 300 operating days per year at 6 hours per day (hr/day), equivalent to 1,800 hours per year (hr/yr)
  - 0.837 MMBtu/hr x 1,800 hr/yr = **1,506 MMBtu/yr**
- Scenario B: Weekday only operations of 261 days per year at 6 hours per day, equivalent to 1,566 hr/yr
  - 0.837 MMBtu/hr x 1,566 hr/yr = **1,311 MMBtu/yr**

(C) AP-42 Emission Factors

The U.S. EPA's AP-42 Section 1.4 provides emission factors for natural gas combustion, expressed in pounds of pollutant per million standard cubic feet of natural gas fired (lbs/10^6 scf).[26] AP-42 provides instructions for converting these factor to lbs/MMBtu by dividing by 1,020 Btu/scf. For a small commercial natural-gas-fired steam boiler like those used by dry cleaning facilities, the factors are:

- CO_2: 120,000 lbs/10^6scf ÷ 1,020 Btu/scf = 117.65 lbs/MMBtu
- NO_X (Controlled – Low NO_X burners): 50 lbs/10^6scf ÷ 1,020 Btu/scf = 0.05 lbs/MMBtu[27]
- CO: 84 lbs/10^6scf ÷ 1,020 Btu/scf = 0.08 lbs/MMBtu
- VOC: 5.5 lbs/10^6scf ÷ 1,020 Btu/scf = 0.005 lbs/MMBtu

(D) Calculating Annual Fuel Input

The emissions for each pollutant can be calculated by multiplying the following:

Annual Fuel Input (MMBtu/yr) x Emission Factor (lbs/MMBtu) = Annual Emissions (lbs/yr)

Using this equation, we can calculate the total emissions per pollutant per dry cleaning facility hours of operation scenario:

- Scenario A: 1,506 MMBtu/yr
  - CO_2: 177,180.90 lbs/yr, or approximately 88.59 tons per year (tpy)
  - NO_X: 75.30 lbs/yr
  - CO: 81.60 lbs/yr

[26] See Footnote 7, AP-42: Compilation of Air Emissions Factors from Stationary Sources, Section 1.4 – Natural Gas Combustion, page 5 and 6, Tables 1.4-1 and 1.4-2

[27] South Coast AQMD Rule 1146.2 sets NO_X emission limits which may be achieved by low-NO_X or ultra-low-NO_X burner, thus this Project Plan uses the 50 lb/10^6 scf controlled factor when estimating NO_X emissions. For more information, see https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1146-2.pdf?sfvrsn=4.

- VOC: 7.53 lbs/yr

- Scenario B: 1,311 MMBtu/yr
  - CO_2: 154.239.15 lbs, or approximately 77.12 tpy
  - NO_X: 65.55 lbs/yr
  - CO: 104.88 lbs/yr
  - VOC: 6.56 lbs/yr

Actual emissions at individual dry cleaning facilities will vary depending on operating schedule, equipment, and materials used. These estimates help to provide a baseline for illustrating potential emission reductions when dry cleaning facilities transition to professional wet cleaning and electric boilers, which produce zero on-site emissions.

Calculating Operating Costs (Pre-Conversion)

Recurring operating costs for dry cleaning facilities are primarily from natural gas, electricity use, and the petroleum-based solvent use. The following provides a baseline estimate for typical small dry cleaning facilities operating a 20 BHP natural-gas-fired steam boiler, baseline electricity loads, and petroleum-based solvent use. Actual dry cleaning facility costs vary with equipment size and individual business practices.

(A) Estimated Operating Conditions and Rates

- Boiler size: 20 BHP (1 BHP = 33,475 Btu/hr)
- Boiler efficiency: 80% efficiency rate
- Operating Schedule Scenarios
  - Scenario A: 300 operating days/yr at 6 hr/day, equivalent to 1,800 hr/yr
  - Scenario B: Weekday only operations of 261 days/yr at 6 hr/day, equivalent to 1,566 hr/yr
- Energy Rates (August 2024 Los Angeles-Long Beach-Anaheim area averages)[28] Natural gas: $1.63 per therm
  - Electricity: $0.282 per kilowatt-hour(kWh)
- Electricity use baseline: 63 to 72 kWh/day (includes lighting, finishing equipment, plug loads; excludes boiler fuel)
- Solvent Use: 1 to 2.5 gal/month (subject to South Coast AQMD permit conditions) at $14.95 to $22.95 per gallon

(B) Calculating Natural Gas (Boiler) Cost

- Fuel input for 20 BHP boiler at 80% efficiency = 0.837 MMBtu/hr (as noted above)

[28] United States Bureau of Labor Statistics, *Average Energy Prices, Los Angeles-Long Beach-Anaheim – August 2024*, https://www.bls.gov/regions/west/news-release/2024/averageenergyprices_losangeles_20240916.htm

• 8.37 therms/hr x 6 hr/day = 50.22 therms/day

• Daily cost = 50.2 therms/day x $1.63 per therm = $81.85 per day

• Annual Totals

- Scenario A: $81.85 x 300 days = $24,555.00 per year
- Scenario B: $81.85 x 261 days = $21,362.85 per year

(C) Calculating Electricity Cost

Typical floor area data and energy intensity benchmarks were reviewed to determine the electricity use baseline of a dry cleaning facility. Listings for dry cleaning facilities in Los Angeles County show a range from approximately 700 ft^2(square feet) to 2,000 ft^2.[29] For purposes of estimating operating costs, an average of 1,350 ft^2 was used.

The U.S. EPA states that "Personal Services (Health/Beauty, Dry Cleaning, etc.)" buildings report a Site Energy Use Intensity (EUI) of 47.9 kBtu/ft^2 per year.[30] To express this figure in kWh/ft^2: • 47.9 kBtu/ft^2 divided by 3.412 kbtu/kWh = 14.04 kWh/ft^2

For 1,350 ft^2, this is approximately 18,954 kWh/yr. Per operating day scenarios: • 300 days: 63.2 kWh/day x $0.282/kWh = **$17.82 per day**

• 261 days: 72.6 kWh/day x $0.282/kWh = **$20.47 per day**

While fewer operating days increases per-operating-day average, the annual usage remains the same and thus equates to $5,346 per year.

(D) Calculating Solvent Use Cost

The use of 1 to 2.5 gallons per month of hydrocarbon solvent DF-2000 ranges from $14.95 to $22.95 per gallon based on the purchase size of 1-gallon pails to 55-gallon drums with a local vendor.[31] This equates to the following costs based on usage:

• Low use (1 gal/month): 12 gal/yr x $14.95-$22.95 per gal = **$179.40 to $275.40 per year** • High use (2.5 gal/month): 30 gal/yr x $14.95-$22.95 per gal = **$448.50 to $688.50 per year**

(E) Total Annual Operating Costs

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[29] For purposes of determining an average dry cleaning facility size, a listing of dry cleaning facilities for sale in Los Angeles County was used for reference. Additional examples of facilities for sale may be found at the BizBuySell website at: https://www.bizbuysell.com/california/los-angeles-county/dry-cleaners-for-sale/

[30] U.S. Environmental Protection Agency, *ENERGY STAR Portfolio Manager: Technical Reference – U.S. Energy Use Intensity by Property Type*, August 2024, https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf

[31] South Coast AQMD does not endorse or promote any specific technology or vendor. This figure is used solely as a reference point for calculation purposes. For more information, see 3Hanger Supply Company's listing for DF-2000 at https://3hangersupply.com/products/hydrocarbon-call-to-order?variant=47611978023214.

Scenario	Natural Gas ($/yr)	Electricity ($/yr)	Solvent ($/yr)	Total ($/yr)
300 days	24,555.00	5,345.00	179.40 to 688.50	29,852.40 to 30,361.50
261 days	21,362.85	5,345.00	179.40 to 688.50	26,660.25 to 27,169.35

These totals estimate current dry cleaning operation dependency on natural gas boilers, with boiler fuel cost accounting for roughly 80 to 85% of annual operating costs expenses. While the exact cost may vary by facility, this estimate provides a baseline that can be used to evaluate post-conversion cost effectiveness and benefits.